

FORM PTO-1390 (Modified) (REV 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				112740-549
INTERNATIONAL APPLICATION NO. PCT/DE00/01536		INTERNATIONAL FILING DATE 15 May 2000		U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 10/049933
				PRIORITY DATE CLAIMED 17 August 1999
TITLE OF INVENTION METHOD AND APPARATUS FOR DISTRIBUTING GOODS				
APPLICANT(S) FOR DO/EO/US Andrea Heilingbrunner et al.				
<p>Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below. 4. <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)). 11. <input type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409). 12. <input type="checkbox"/> A copy of the International Search Report (PCT/ISA/210). <p>Items 13 to 20 below concern document(s) or information included:</p> <ol style="list-style-type: none"> 13. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 14. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 15. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 16. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 17. <input checked="" type="checkbox"/> A substitute specification. 18. <input type="checkbox"/> A change of power of attorney and/or address letter. 19. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. 20. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 21. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 22. <input checked="" type="checkbox"/> Certificate of Mailing by Express Mail 23. <input type="checkbox"/> Other items or information: 				

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR
10/049933

INTERNATIONAL APPLICATION NO.

JCTU REC'D

PCT/DE00/01536

PCT/2002 10 FEB 2002

ATTORNEY'S DOCKET NUMBER
112740-549

24. The following fees are submitted::

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

<input type="checkbox"/>	Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO	\$1040.00
<input checked="" type="checkbox"/>	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO	\$890.00
<input type="checkbox"/>	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	\$740.00
<input type="checkbox"/>	International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)	\$710.00
<input type="checkbox"/>	International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)	\$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =**\$890.00**Surcharge of **\$130.00** for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)). 20 30**\$0.00**

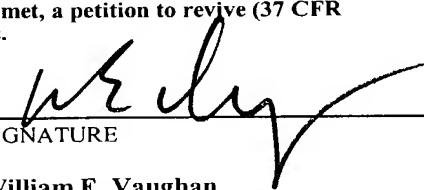
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	35 - 20 =	15	x \$18.00	\$270.00
Independent claims	4 - 3 =	1	x \$84.00	\$84.00
Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>	\$0.00
TOTAL OF ABOVE CALCULATIONS =				\$1,244.00
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				\$0.00
SUBTOTAL =				\$1,244.00
Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492 (f)).				<input type="checkbox"/> 20 <input type="checkbox"/> 30 + \$0.00
TOTAL NATIONAL FEE =				\$1,244.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).				<input type="checkbox"/> \$0.00
TOTAL FEES ENCLOSED =				\$1,244.00
				Amount to be: refunded \$
				charged \$

- A check in the amount of **\$1,244.00** to cover the above fees is enclosed.
- Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.
- The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **02-1818** A duplicate copy of this sheet is enclosed.
- Fees are to be charged to a credit card. **WARNING: Information on this form may become public. Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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REGISTRATION NUMBER

February 18, 2002

DATE

10/049933

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BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

PRELIMINARY AMENDMENT

APPLICANTS: Andrea DOCKET NO.: 112740-549
Heilingbrunner et al.

SERIAL NO: GROUP ART UNIT:

FILED: EXAMINER:

INTERNATIONAL APPLICATION NO.: PCT/DE00/01536

INTERNATIONAL FILING DATE 15 May 2000

INVENTION: METHOD AND APPARATUS FOR DISTRIBUTING
GOODS

Assistant Commissioner for Patents,
Washington, D.C. 20231

10

Sir:

Please amend the above-identified International Application before entry
into the National stage before the U.S. Patent and Trademark Office under 35
U.S.C. §371 as follows:

15

In the Specification:

Please replace the Specification of the present application, including the
Abstract, with the following Substitute Specification:

S P E C I F I C A T I O N

METHOD AND APPARATUS FOR DISTRIBUTING GOODS

BACKGROUND OF THE INVENTION

An item which has been ordered, for example, by mail, telephone or the

- 5 Internet, has in the past usually been delivered to the address desired by the purchaser by a delivery service, forwarding company or the like. To be able to take delivery of the item, the purchaser either must be at the place at the time of delivery or authorize a person to take delivery of the item. However, due to the organizational structure, it is not possible, in general, for the delivery service to
- 10 announce in advance the precise time of delivery. Therefore, situations very often arise in which the delivery service finds no-one at the place of delivery to whom it can hand over the item.

In these cases, in the past the delivery service has usually left in the mailbox a note on which a new time is suggested or a pickup point (for example, the Post Office) is given. If a new delivery time is agreed, there is again the same problem, since here, too, the precise time rarely can be specified and it is only possible in general for this to be within a restricted time frame; for example, during the customary working hours. The possibility of picking up the item at a predetermined pickup point is generally not a genuine alternative, since the responsible agency at this pickup point typically also has restricted opening hours. Moreover, picking up the item is only possible after presenting proof of identity, which is quite inconvenient.

It is, therefore, an object of the present invention to specify an alternative to the methods mentioned.

- 25

SUMMARY OF THE INVENTION

This object is achieved by a method for distributing goods in which a good is deposited by a consignor and secured with a lock, and a common electronic key is assigned to the lock and to a personalized terminal device belonging to the consignee such that, when the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.

In a further embodiment of the present invention, a locking device is provided for securing a good deposited by a consignor, which includes a lock for locking the locking device, wherein the lock includes an assignment input for assignment of an electronic key and an opening input for receipt of a transmitted electronic key, a comparator for comparing the transmitted electronic key with the assigned electronic key, and a release mechanism for opening the lock when the transmitted electronic key matches the assigned electronic key.

In yet another embodiment of the present invention, a terminal device is provided for unlocking a locking device securing a good deposited by a consignor, which includes a receiver part for receiving an electronic key from the consignor, the electronic key being assigned both to the terminal device and to the locking device, a storage part for storing the electronic key, and a transmitting part for transmitting the electronic key to the locking device, wherein the transmitted electronic key is compared with the electronic key assigned to the locking device, and the lock is unlocked and the good is released if the transmitted electronic key matches the electronic key assigned to the locking device.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention.

DETAILED DESCRIPTION OF THE INVENTION

The term "consignor" is to be understood here as any person responsible for handing over the item; for example, the seller itself or a delivery service authorized by it. The term "consignee" is generally the person who takes delivery of an item; for example, the purchaser or a person nominated to pick up the item. The personalized terminal device preferably may be a mobile communications terminal device, such as a cellular phone or a PDA (Personal Digital Assistant), with a dedicated unique personal identification, or else with a corresponding chip card; on which the personal identification is stored. The personal identification may be regarded in the broadest sense as including the telephone number of the device. It also may be, however, the chip card itself, such as a smart card, which is uniquely assigned to the consignee and can be used in various devices or terminal devices.

The method according to the present invention offers the possibility of leaving the item at any desired time and securing it in such a way that only an authorized person, that is the purchaser itself or a person instructed by the latter, can pick up the item at any desired time. The assignment of the common electronic 5 key to the lock and to the consignee's personalized terminal device provides the highest possible security for both parties, since the key is coupled with a unique identification of the consignee.

The method makes possible considerable time savings and personal savings and, consequently, cost advantages on the part of the delivery companies or mail-order trade. For the orderer or the recipient, the present invention has the 10 advantage that, particularly in the case of what are known as e-commerce transactions, it is independent of the opening hours of an actual business, or in the case of delivery, of the delivery times or opening hours of a pickup place.

The electronic key is preferably transmitted to the consignee's terminal 15 device with the aid of a remote data transmission method; for example, via mobile radio. This method has the advantage that, due to the relatively good area coverage of the mobile radio networks, the consignee can be transmitted its key at any time, independently of the location.

The consignee can send the key on the spot to the locker directly from the 20 mobile communications terminal device. For this purpose, both the communications terminal device and the locker have corresponding transmitters and receivers. These are preferably short-range transmitters and receivers. These include, for example, infrared interfaces or else what are known as "Bluetooth" modules; i.e., short-range radio transmitters or receivers which serve for the 25 exchange of data between neighboring devices. It goes without saying that it is also possible for the key to be output on a display of the cellular phone and entered again via the keypad on the device by the person carrying out the pickup.

It also goes without saying that here, too, transmission via the wide-ranging mobile radio network is possible. The use of short-range communication for the 30 transmission of the key to the lock has the advantage, however, that the consignee

cannot inadvertently transmit the key and trigger a release of the good although he/she is not ready at the place to take delivery.

To increase the security for the consignor, it is also possible for the transmission of the key to the consignee's terminal device only to take place after a 5 prescribed transaction has been carried out; for example, a payment has been made. This securing measure may also take the form that the consignee has already transmitted the key before the payment and the lock only releases the good once an additional release signal of the consignor has been received. That is to say, on the one hand the correct transmission of the key and on the other hand the release 10 signal are necessary for the opening of the lock.

It is also possible for the key to include two parts, and for one part-key to be passed on immediately to the person carrying out the pickup and another part-key only to be passed on to the person carrying out the pickup when a payment safely has been made. The locker can then only be opened with the key composed of 15 these two parts.

In the case of these methods, the previously existing problem of payment for the item is also solved in a simple way. Delivery on the basis of a credit card or debit note is often too insecure for the seller. The cash-on-delivery method, which by contrast is relatively secure and in which the amount is paid to the delivery 20 service on delivery of the item, entails increased costs.

Information on the time from which and at which place the item has been deposited ready for pickup preferably is also transmitted at the same time as the key to the terminal device.

There are various possibilities for the assignment of the key to the lock. 25 In the case of one exemplary embodiment, the key is newly assigned to the locker for each deposit. This assignment may take place before, after or during the depositing act. In this case, either the consignor can freely select the key or a random key is generated automatically, such as with the aid of a random generator, and this key is transmitted to the consignor, if appropriate, after a corresponding 30 inquiry. The consignor can then pass on the key to the consignee when the order is placed.

With the freely selectable assignment of the key to the lock, it is possible for a unique personal identification, such as a credit card number of the consignee, or a unique identification of the terminal device belonging to the consignee, such as the mobile radio number, to be chosen as the key and assigned to the lock. This 5 method is appropriate, in particular, whenever the item is being ordered by cellular phone or is being paid for with a credit card. In this case, the key does not have to be sent by the consignor to the device in a separate operation.

In the case of another exemplary embodiment, the same key is always used. In this case, however, the transmission to the consignee's terminal device should 10 only take place in such an encoded form that this key cannot be read by the consignee. The key is then stored in the terminal device and used for releasing the lock when delivery is taken of the good, without the consignee finding out what the key is.

For this purpose, it is also advantageous, in particular, if the key 15 automatically becomes invalid when an invalidation condition occurs. Possible invalidation conditions could be, *inter alia*, the expiry of a prescribed time of use for the good or a prescribed number of accesses to the lock. For instance, in the case of the exemplary embodiment mentioned above, in which the same key is always used and is not recognizable for the respective consignee, the key 20 automatically becomes invalid after being transmitted once to the lock. As such, no further access to the same lock is possible by the consignee once delivery has been taken of the good.

Further invalidation conditions may be, for example, repeated incorrect 25 transmission of the key to the lock, or unsuccessful opening attempts, or else an inhibit command sent by the consignor to the lock.

The assignment of the key to the lock by the consignor, the inquiry of a key, the entering of inhibit commands or the like are preferably carried out with the aid of a remote data transmission method; for example, mobile radio.

It goes without saying that a transmission of the key both to the consignee's 30 terminal device and to the lock by the consignor can be carried out over other data lines; for example, the Internet or e-mail.

The method according to the present invention may be carried out, in particular, with electronic locks which control the locking device of a locker. In this case, for handing over, the good is deposited in a corresponding, publicly accessible locker and therein secured. The consignee can at any desired time open 5 the lock with the key transmitted to him/her and remove the good. Another possibility, particularly in the case of relatively large goods such as motor vehicles which have a locking device of their own, is to control this locking device by a corresponding electronic lock.

In the present invention, therefore, a locking device for securing a good is 10 also specified for carrying out the method according to the present invention. This locking device correspondingly has a lock with an assignment input for the assignment of an electronic key and with an opening input for the entering of an electronic key for opening. In addition, it has a comparator, which checks the match of the two keys, and a release mechanism, which opens the locking device 15 when there is a match of the key.

Depending on the desired method, this locking device also may have an invalidation mechanism, which makes the key invalid when the prescribed invalidation condition occurs.

Further components are, for example, a random generator for the generation 20 of a key, which is assigned to the lock via a corresponding input and can be transmitted to the consignor or inquired by the latter via a corresponding output. Furthermore, such a locking device has a receiver, as well as a transmitter for transmitting the electronic key via a data transmission link. If the short-range communication between the consignee's terminal device and the lock is used, a 25 correspondingly short-range receiver, such as an infrared interface, is provided for the opening input.

If such locks are used within a locker system, the locks of a group of lockers also may be assigned a common electronic group key, all these lockers with the common group key being assigned to a specific delivery company or a specific 30 mail-order firm. If a group key is used, it goes without saying that it must be ensured when the key is transmitted to the locker system that the respective key

opens only the desired locker. This may take place, for example, via an additional assignment code or the like. In particular, when using a key which cannot be read by the consignee and is deleted again immediately after expiry of an access authorization, this group key has the advantage that it is not necessary in the 5 organization of the sender or delivery service to work with continually changing keys.

A terminal device for carrying out the method must, according to the present invention, have parts for receiving, storing and passing on a corresponding electronic key to an electronic lock, the part for passing on the key to the lock 10 preferably being a short-range transmitter.

In the case of a preferred exemplary embodiment, the device or the mentioned components of the terminal device are designed such that they receive, store and transmit the key to the lock in a form which cannot be read by the user.

Similarly, this terminal device may have an invalidation mechanism, for 15 example with a clock or a counter, which automatically deletes the key when a specific invalidation condition occurs; for example, after expiry of a specific time or after a specific number of transmissions to the lock, possibly after once-only use. This invalidation condition can be transmitted by the consignor together with the key to the device. However, in principle, the invalidation condition also may be 20 preset in a fixed way in the device.

The device is preferably a mobile communications terminal device; for example, a cellular phone or a PDA with a chip card, or the consignee's chip card itself. This may be a normal SIM card, on which the key is buffer-stored by the mobile communications terminal device. This also may be, however, a smart card, 25 which itself is capable of controlling the corresponding desired functions largely independently of the communications terminal device respectively used. The use of a smart card also has the advantage that better coding of the key can be achieved in a simple way, so that a secure transmission is possible without a third party being able to gain possession of the key by listening in to the transmission.

30 It goes without saying that the receiver of the device or the transmitter of the communications terminal device may be what are known as transceivers, which

permit both reception and transmission, so that, when the key for opening is transferred, a two-way communication between the locking device and the communications terminal device can take place. Therefore, further inquiries and checks are possible as additional securing measures before the release of the good.

5 For instance, it is also possible for the payment conditions under which the locking device can be opened to be stored in a corresponding part on the device and for the key for opening to be accepted only after the execution of a payment instruction via the communications terminal device; for example, by a kind of online banking.

10 If the respective good is an item which itself can be transmitted via a data link, such as music or software, the electronic lock also can be used to store the desired data and secure it via a corresponding electronic lock on, for example, certain servers accessible to the public via the Internet. The taking over of the good, that is to say in this case a downloading operation, on the respective server only is
15 possible by a key being transmitted to the server or the lock there from a corresponding terminal device belonging to the consignee. This procedure has advantages particularly when supplying relatively large amounts of data, as is the case with music or video films.

20 The transmission of such large amounts of data from a few central servers of a data producer represents quite a high loading of the network. With the method according to the present invention, this capacity problem can be solved by the item being deposited at decentralized mirrored servers. The respective operators of these servers, i.e. the data distributors, are, however, generally not necessarily identical with the data producers, but are rather a kind of delivery service for the
25 actual supplier. Since, in the present case, the good is not taken over in the actual sense, but rather is copied, there is at the location of the server a corresponding device which records the transfer of the correct key to the lock. This may be used by the operator of the server as evidence to the original producer that the service has been performed.

30 The present invention is explained once again below on the basis of two exemplary embodiments.

In the case of a first exemplary embodiment, any desired product is ordered by an orderer via a cellular phone. The seller deposits the item in a locker and assigns a key to this locker via a corresponding data transmission link; for example, a radio link or a data line. This assignment of the key also may take place in 5 advance, whereby the seller has reserved the corresponding locker and can deposit the item in this locker at any time. These lockers are in an area which is accessible to the public at any time. The orderer then receives a message on his/her cellular phone indicating at which locker and from what time he/she can pick up the item. At the same time, the electronic key is loaded onto the orderer's cellular phone, 10 such as by downloading, by Java-applied or WAP. The orderer then goes to the locker at his/her desired time and uses his/her cellular phone to establish short-range communication with the locker or the corresponding device of the locker. The key is thereby transmitted to the locker. After all the necessary data have been exchanged and possibly further security steps, such as an inquiry that the payment 15 has taken place, have been successfully conducted, the opening of the locker takes place and is released the item for the recipient.

The second exemplary embodiment involves an electronic lock on a rental car. First, a key is allocated to a special lock of a rental car by the consignor; i.e., the car rental center. This key is, for example, the credit card number which the 20 consignee, or the renter, has given when ordering the rental car and via which the payment took place. The lock of the rental car has for this purpose a corresponding receiver for a cellular phone transmission, so that the car rental center assigns this key to the car lock via the normal mobile radio network. The consignee is likewise informed via the mobile radio network at which place and when he/she can pick up 25 the car. With a corresponding part in the cellular phone, such as an infrared interface, the consignee can then open the car by transmission of his/her credit card number. It goes without saying that, instead of the credit card number, the personal key also may be a personal number on the SIM card or a smart card in the cellular phone, which is sent directly as the key at the push of a button, without any further 30 entry on the cellular phone. After expiry of the rental time, the key is then

automatically invalidated in the lock of the motor vehicle, so that the renter no longer has access to the car.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be 5 made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

A method for distributing goods in which the good is deposited by a consignor and secured with a lock. A common electronic key is assigned to the lock and to a personalized terminal device belonging to the consignee. When the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.

In the Claims:

On page 12, cancel line 1 and substitute the following left-hand justified heading therefor:

CLAIMS

5 Please cancel claims 1-30, without prejudice, and substitute the following claims therefor:

31. A method for distributing goods, the method comprising the steps of:

10 depositing a good by a consignor;
securing the good with a lock;
assigning a common electronic key both to the lock and to a personalized terminal device belonging to a consignee;
transmitting the electronic key from the terminal device to the lock;
comparing the electronic key transmitted from the terminal device with the
15 electronic key assigned to the lock; and
unlocking the lock and releasing the good only if the electronic key transmitted from the terminal device matches the electronic key assigned to the lock.

20 32. A method for distributing goods as claimed in claim 31, the method further comprising the step of utilizing a remote data transmission method for transmitting the electronic key to the terminal device.

25 33. A method for distributing goods as claimed in claim 32, wherein the electronic key is transmitted to the terminal device in a form which cannot be read by the consignee.

30 34. A method for distributing goods as claimed in claim 31, the method further comprising the step of employing a short-range data transmission method for transmitting the electronic key from the terminal device to the lock.

35. A method for distributing goods as claimed in claim 31, wherein transmission of the electronic key to the consignee's terminal device occurs only after a prescribed transaction has been carried out.

5 36. A method for distributing goods as claimed in claim 31, wherein the release of the good by the lock occurs only after a prescribed transaction has been carried out.

10 37. A method for distributing goods as claimed in claim 31, the method further comprising the step of transmitting information relating to at least one of a time and a place of the deposit, simultaneously with the electronic key, to the terminal device.

15 38. A method for distributing goods as claimed in claim 31, the method further comprising the step of automatically invalidating the electronic key when an invalidation condition occurs.

39. A method for distributing goods as claimed in claim 38, wherein the invalidation condition occurs after expiration of a prescribed time.

20 40. A method for distributing goods as claimed in claim 38, wherein the invalidation condition occurs after a prescribed number of openings of the lock.

25 41. A method for distributing goods as claimed in claim 31, wherein a new electronic key is assigned to the lock for each deposit.

42. A method for distributing goods as claimed in claim 31, the method further comprising the step of utilizing a random generator to determine and assign the electronic key to the lock.

43. A method for distributing goods as claimed in claim 31, wherein the electronic key is assigned to the lock in a freely selectable manner via an entry into a memory.

5 44. A method for distributing goods as claimed in claim 31, the method further comprising the step of utilizing a remote data transmission method for assigning the electronic key to the lock.

10 45. A method for distributing goods as claimed in claim 31, wherein the transmission of the electronic key to the terminal device occurs via mobile radio.

46. A method for distributing goods as claimed in claim 31, wherein the assignment of the electronic key to the lock occurs via mobile radio.

15 47. A method for distributing goods as claimed in claim 43, wherein a unique personal identification of the consignee is chosen as the electronic key.

48. A method for distributing goods as claimed in claim 43, wherein a unique identification of the terminal device is chosen as the electronic key.

20 49. A method for distributing goods as claimed in claim 31, the method further comprising the step of allowing release of the good only after a release command of the consignor has been received.

25 50. A method for distributing goods as claimed in claim 31, wherein the lock controls a locking device of a locker.

51. A method for distributing goods as claimed in claim 31, wherein the lock controls a locking device of the good itself.

52. A locking device for securing a good deposited by a consignor, comprising:

a lock for locking the locking device, the lock including an assignment input for assignment of an electronic key and an opening input for receipt of a transmitted electronic key;

a comparator for comparing the transmitted electronic key with the assigned electronic key; and

a release mechanism for opening the lock when the transmitted electronic key matches the assigned electronic key.

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53. A locking device for securing a good deposited by a consignor as claimed in claim 52, further comprising a mechanism for automatically invalidating the electronic key when a prescribed invalidation condition occurs.

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54. A locking device for securing a good deposited by a consignor as claimed in claim 52, further comprising:

a random generator for generating the electronic key and for assigning the electronic key to the lock via the assignment input; and

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55. A locking device for securing a good deposited by a consignor as claimed in claim 52, further comprising at least one of a receiver and a transmitter for transmission of the electronic key via a data transmission link.

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56. A locking device for securing a good deposited by a consignor as claimed in claim 52, further comprising a short-range receiver for receiving the transmitted electronic key.

57. A locking device for securing a good deposited by a consignor as
30 claimed in claim 52, wherein the locking device is incorporated into a locker.

58. A locking device for securing a good deposited by a consignor as claimed in claim 57, wherein the locker is one of a plurality of similar lockers incorporated into a locker system.

5 59. A locking device for securing a good deposited by a consignor as claimed in claim 58, wherein the locks of a plurality of the lockers are assigned a common electronic group key.

10 60. A terminal device, having a unique personal identification, for unlocking a locking device securing a good deposited by a consignor, comprising:

a receiver part for receiving an electronic key from the consignor, the electronic key being assigned both to the terminal device and to the locking device;

a storage part for storing the electronic key; and

15 a transmitting part for transmitting the electronic key to the locking device, wherein the transmitted electronic key is compared with the electronic key assigned to the locking device, and the lock is unlocked and the good is released if the transmitted electronic key matches the electronic key assigned to the locking device.

20 61. A terminal device for unlocking a locking device as claimed in claim 60, wherein the electronic key is automatically invalidated via an invalidation mechanism when an invalidation condition occurs.

25 62. A terminal device for unlocking a locking device as claimed in claim 61, wherein the invalidation condition occurs at a specific point in time.

63. A terminal device for unlocking a locking device as claimed in claim 61, wherein the invalidation condition occurs after a specific number of transmissions to the lock.

64. A terminal device for unlocking a locking device as claimed in claim 60, wherein the terminal device receives, stores and transmits the electronic key to the locking device in a form which cannot be read by a user of the terminal device.

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65. A terminal device for unlocking a locking device as claimed in claim 60, further comprising a chip card which assists in at least one of receiving, storing and transmitting the electronic key.

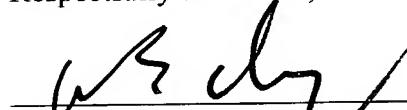
REMARKS

10 The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a marked-up version of the changes made to the specification by the present amendment. The attached page is captioned
15 **“Version With Markings To Show Changes Made”.**

In addition, the present amendment cancels original claims 1-30 in favor of new claims 31-65. Claims 31-65 have been presented solely because the revisions by red-lining and underlining which would have been necessary in claims 1-30 in order to present those claims in accordance with preferred United States Patent
20 Practice would have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 U.S.C. §§101, 102, 103 or 112. Indeed, the cancellation of claims 1-30 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims
25 1-30.

Early consideration on the merits is respectfully requested.

Respectfully submitted,



(Reg. No. 39,056)

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Version With Markings To Show Changes Made

Description-S P E C I F I C A T I O N

Method for distributing goods

METHOD AND APPARATUS FOR DISTRIBUTING GOODS

5 ~~The invention relates to a method for distributing goods.~~

BACKGROUND OF THE INVENTION

An item which has been ordered, for example, by mail, telephone or the Internet, has in the past usually been delivered to the address desired by the purchaser by a delivery service, forwarding company or the like. To be able to take 10 delivery of the item, the purchaser ~~must~~ either must be at the place at the time of delivery or authorize a person to take delivery of the item. However, ~~on account of~~ due to the organizational structure, it is ~~unfavorably~~ not possible, in general, for the delivery service to announce in advance the precise time of delivery. Therefore, situations very often arise in which the delivery service finds no-one at the place of 15 delivery to whom it can hand over the item.

In these cases, ~~in the past~~ the delivery service has usually left in the mailbox a note on which a new time is suggested or a pickup point (for example, the Post Office) is given. If a new delivery time is agreed, there is again the same problem, since here, too, the precise time ~~can rarely~~ can be specified and it is only possible in 20 general for this to be within a restricted time frame; for example, during the customary working hours. The possibility of picking up the item at a predetermined pickup point is generally not a genuine alternative, since the responsible agency at this pickup point ~~typically~~ also has ~~in general~~ restricted opening hours. Moreover, picking up the item is only possible after presenting 25 proof of identity, which is quite inconvenient.

It is, therefore, ~~the~~ an object of the present invention to specify an alternative to the methods mentioned.

SUMMARY OF THE INVENTION

This object is achieved by a method for distributing goods in which the a 30 good is deposited by a consignor and secured with a lock, and a common electronic key is assigned to the lock and to a personalized terminal device belonging to the

consignee such that and, when the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.

In a further embodiment of the present invention, a locking device is provided for securing a good deposited by a consignor, which includes a lock for locking the locking device, wherein the lock includes an assignment input for assignment of an electronic key and an opening input for receipt of a transmitted electronic key, a comparator for comparing the transmitted electronic key with the assigned electronic key, and a release mechanism for opening the lock when the transmitted electronic key matches the assigned electronic key.

In yet another embodiment of the present invention, a terminal device is provided for unlocking a locking device securing a good deposited by a consignor, which includes a receiver part for receiving an electronic key from the consignor, the electronic key being assigned both to the terminal device and to the locking device, a storage part for storing the electronic key, and a transmitting part for transmitting the electronic key to the locking device, wherein the transmitted electronic key is compared with the electronic key assigned to the locking device, and the lock is unlocked and the good is released if the transmitted electronic key matches the electronic key assigned to the locking device.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention.

DETAILED DESCRIPTION OF THE INVENTION

The term "consignor" is to be understood here as any person responsible for handing over the item; for example, the seller itself or a delivery service authorized by it. The term "consignee" is generally the person who takes delivery of an item; for example, the purchaser or a person nominated to pick up the item. The personalized terminal device may preferably may be a mobile communications terminal device, for example such as a cellular phone or a PDA (Personal Digital Assistant), with a dedicated unique personal identification, or else with a corresponding chip card, on which the personal identification is stored. The personal identification may be regarded in the broadest sense as including the

telephone number of the device. It also may be, however, ~~in principle also be~~ the chip card itself, ~~for example such as~~ a smart card, which is uniquely assigned to the consignee and can be used in various devices or terminal devices.

The method according to the present invention offers the possibility of
5 leaving the item at any desired time and securing it in such a way that only an authorized person, that is the purchaser itself or a person instructed by the latter, can pick up the item at any desired time. The assignment of the common electronic key to the lock and to the consignee's personalized terminal device provides the highest possible security for both parties, since the key is coupled with a unique
10 identification of the consignee.

The method makes possible considerable time savings and personal savings and, consequently, cost advantages on the part of the delivery companies or mail-order trade. For the orderer or the recipient, the present invention has the advantage that, ~~in particular~~ particularly in the case of what are known as e-commerce transactions, it is independent of the opening hours of an actual business, or in the case of delivery, of the delivery times or opening hours of a pickup place.

The electronic key is preferably transmitted to the consignee's terminal device with the aid of a remote data transmission method; for example, via mobile radio. This method has the advantage that, ~~on account of~~ due to the relatively good area coverage of the mobile radio networks, the consignee can be transmitted its key at any time, independently of the location.

The consignee can send the key on the spot to the locker directly from the mobile communications terminal device. For this purpose, both the
25 communications terminal device and the locker have corresponding transmitters and receivers. These are preferably short-range transmitters and receivers. These include, for example, infrared interfaces or else what are known as "Bluetooth" modules; i.e., short-range radio transmitters or receivers which serve for the exchange of data between neighboring devices. It goes without saying that it is
30 also possible for the key to be output on a display of the cellular phone and entered again via the keypad on the device by the person carrying out the pickup.

It also goes without saying that here, too, transmission via the wide-ranging mobile radio network is possible. The use of a short-range communication means for the transmission of the key to the lock has the advantage, however, that the consignee cannot inadvertently transmit the key and trigger a release of the good

5 although he/she is not ready at the place to take delivery.

To increase the security for the consignor, it is also possible for the transmission of the key to the consignee's terminal device only to take place after a prescribed transaction has been carried out; for example, a payment has been made. This securing measure may also take the form that the consignee has already

10 transmitted the key before the payment and the lock only releases the good once an additional release signal of the consignor has been received. That is to say, on the one hand the correct transmission of the key and on the other hand the release signal are necessary for the opening of the lock.

It is also possible for the key to comprise include two parts, and for one

15 part-key to be passed on immediately to the person carrying out the pickup and another part-key only to be passed on to the person carrying out the pickup when a payment has safely has been made. The locker can then only be opened with the key composed of these two parts.

In the case of these methods, the previously existing problem of payment

20 for the item is consequently also solved in a simple way. Delivery ~~on account or~~ on the basis of a credit card or debit note is often too insecure for the seller. The cash-on-delivery method, which by contrast is relatively secure and in which the amount is paid to the delivery service on delivery of the item, entails increased costs.

Information on the time from which and at which place the item has been

25 deposited ready for pickup is preferably is also transmitted at the same time as the key to the terminal device.

There are various possibilities for the assignment of the key to the lock.

In the case of one exemplary embodiment, the key is newly assigned to the

30 locker for each deposit. This assignment may take place before, after or during the depositing act. In this case, either the consignor can freely select the key or a random key is generated automatically, for example such as with the aid of a

random generator, and this key is transmitted to the consignor, if appropriate, after a corresponding inquiry. The consignor can then pass on the key to the consignee when the order is placed.

With the freely selectable assignment of the key to the lock, it is possible in 5 particular for a unique personal identification, for example such as a credit card number of the consignee, or a unique identification of the terminal device belonging to the consignee, for example such as the mobile radio number, to be chosen as the key and assigned to the lock. This method is appropriate, in particular, whenever the item is ~~in any case~~ being ordered by cellular phone or is 10 being paid for with a credit card. In this case, the key does not have to be sent by the consignor to the device in a separate operation.

In the case of another exemplary embodiment, the same key is always used. In this case, however, the transmission to the consignee's terminal device should only take place in such an encoded form that this key cannot be read by the 15 consignee. The key is then stored in the terminal device and used for releasing the lock when delivery is taken of the good, without the consignee finding out what the key is.

For this purpose, it is also advantageous, in particular, if the key automatically becomes invalid when an invalidation condition occurs. Possible 20 invalidation conditions could be, inter alia, the expiry of a prescribed time of use for the good or a prescribed number of accesses to the lock. For instance, in the case of the exemplary embodiment mentioned above, in which always the same key is always used and is not recognizable for the respective consignee, the key automatically becomes invalid after being transmitted once to the lock, so that. As 25 such, no further access to the same lock is possible by the consignee once delivery has been taken of the good.

Further invalidation conditions may also be, for example, repeated incorrect transmission of the key to the lock, i.e. or unsuccessful opening attempts, or else an inhibit command sent by the consignor to the lock.

The assignment of the key to the lock by the consignor, the inquiry of a key, the entering of inhibit commands or the like are preferably ~~likewise~~ carried out with the aid of a remote data transmission method; for example, mobile radio.

It goes without saying that a transmission of the key both to the consignee's 5 terminal device and to the lock by the consignor can be carried out over other data lines; for example, the Internet or e-mail.

The method according to the present invention may be carried out, in 10 particular, with electronic locks which control the locking device of a locker. In this case, for handing over, the good is deposited in a corresponding, publicly accessible locker and therein secured. The consignee can at any desired time open the lock with the key transmitted to him/her and remove the good. Another 15 possibility, in particular particularly in the case of relatively large goods such as motor vehicles, which in any case have a locking device of their own, is to control this locking device itself by a corresponding electronic lock.

15 In the present invention, therefore, a locking device for securing a good is also specified for carrying out the method according to the present invention. This locking device correspondingly has a lock with an assignment input for the assignment of an electronic key and with an opening input for the entering of an electronic key for opening. In addition, it has a comparator, which checks the 20 match of the two keys, and a release means mechanism, which opens the locking device when there is a match of the key.

Depending on the desired method, this locking device ~~may then additionally~~ also may have an invalidation means mechanism, which makes the key invalid when the prescribed invalidation condition occurs.

25 Further components are, for example, a random generator for the generation of a key, which is assigned to the lock via a corresponding input and can be transmitted to the consignor or inquired by the latter via a corresponding output. Furthermore, such a locking device has a receiver, and also as well as a transmitter for transmitting the electronic key via a data transmission link. If the short-range 30 communication between the consignee's terminal device and the lock is used, a

correspondingly short-range receiver, ~~for example such as~~ an infrared interface, is provided for the opening input.

If such locks are used within a locker system, the locks of a group of lockers ~~may also~~ ~~may~~ be assigned a common electronic group key, all these lockers 5 with the common group key being assigned to a specific delivery company or a specific mail-order firm. If a group key is used, it goes without saying that it must be ensured when the key is transmitted to the locker system that the respective key opens only the desired locker. This may take place, for example, ~~by means of~~ ~~via~~ an additional assignment code or the like. In particular, when using a key which 10 cannot be read by the consignee and is deleted again immediately after expiry of an access authorization, this group key has the advantage that it is not necessary in the organization of the sender or delivery service to work with continually changing keys.

A terminal device for carrying out the method must, according to the 15 ~~present~~ invention, have ~~a means~~ parts for receiving, storing and passing on a corresponding electronic key to an electronic lock, the ~~means~~ part for passing on the key to the lock preferably being a short-range transmitter.

In the case of a preferred exemplary embodiment, the device or the 20 mentioned components of the terminal device are designed ~~in such a way~~ that they receive, store and transmit the key to the lock in a form which cannot be read by the user.

Similarly, this terminal device may have an invalidation ~~means~~ mechanism, for example with a clock or a counter, which automatically deletes the key when a specific invalidation condition occurs; for example, after expiry of a specific time 25 or after a specific number of transmissions to the lock, possibly after once-only use. This invalidation condition can be transmitted by the consignor together with the key to the device. However, in principle, the invalidation condition ~~may also~~ ~~may~~ be preset in a fixed way in the device.

The device is preferably a mobile communications terminal device; for 30 example, a cellular phone or a PDA with a chip card, or the consignee's chip card itself. This may be a normal SIM card, on which the key is buffer-stored by the

mobile communications terminal device. This also may be, however, ~~also~~ be a smart card, which itself is capable of controlling the corresponding desired functions largely independently of the communications terminal device respectively used. The use of a smart card also has the advantage that better coding 5 of the key can be achieved in a simple way, so that a secure transmission is possible without a third party being able to gain possession of the key by listening in to the transmission.

It goes without saying that the receiver of the device or the transmitter of the communications terminal device may be what are known as transceivers, which 10 permit both reception and transmission, so that, when the key for opening is transferred, a two-way communication between the locking device and the communications terminal device can take place. Therefore, further inquiries and checks are possible as additional securing measures before the release of the good.

For instance, it is also possible ~~in particular~~ for the payment conditions 15 under which the locking device can be opened to be stored in a corresponding ~~means~~ part on said the device and for the key for opening to be accepted only after the execution of a payment instruction via the communications terminal device, for example, by a kind of online banking.

If the respective good is an item which ~~can~~ itself can be transmitted via a 20 data link, ~~for example such as~~ music or software, the electronic lock can also can be used to store the desired data and secure it ~~by means of~~ via a corresponding electronic lock, on, for example, certain servers accessible to the public via the Internet, ~~the~~ The taking over of the good, that is to say in this case a downloading 25 operation, on the respective server only ~~being~~ is possible by a key being transmitted to the server or the lock there from a corresponding terminal device belonging to the consignee. This procedure has advantages ~~in particular~~ particularly when supplying relatively large amounts of data, as is the case with music or video films.

The transmission of such large amounts of data from a few central servers of a data producer represents quite a high loading of the network. With the method 30 according to the present invention, this capacity problem can be solved by the item being deposited at decentralized mirrored servers. The respective operators of

these servers, i.e. the data distributors, are, however, in general generally not necessarily identical with the data producers, but are rather a kind of delivery service for the actual supplier. Since, in the present case, the good is not taken over in the actual sense, but rather is copied, there is at the location of the server a

5 corresponding device which records the transfer of the correct key to the lock. This may be used by the operator of the server as evidence to the original producer that the service has been performed.

The present invention is explained once again below on the basis of two exemplary embodiments.

10 In the case of a first exemplary embodiment, any desired product is ordered by an orderer via a cellular phone. The seller deposits the item in a locker and assigns a key to this locker via a corresponding data transmission link, for example, a radio link or a data line. This assignment of the key may also may take place in advance, whereby the seller has reserved the corresponding locker and can

15 deposit the item in this locker at any time. These lockers are in an area which is accessible to the public at any time. The orderer then receives a message on his/her cellular phone indicating at which locker and from what time he/she can pick up his the item. At the same time, the electronic key is loaded onto the orderer's cellular phone, for example such as by downloading, by Java-applied or WAP. The orderer

20 then goes to the locker at the time his/her desired time by him and uses his/her cellular phone to establish short-range communication with the locker or the corresponding means device of the locker. The key is thereby transmitted to the locker. After all the necessary data have been exchanged and possibly further security steps, such as an inquiry that the payment has taken place, have been

25 successfully conducted, the opening of the locker takes place, and consequently the release of is released the item for the recipient.

The second exemplary embodiment involves an electronic lock on a rental car. Firstly First, a key is allocated to a special lock of a rental car by the consignor, i.e., the car rental center. This key is, for example, the credit card number which the consignee, i.e. or the renter, has given when ordering the rental car and by means of via which the payment took place. The lock of the rental car

has for this purpose a corresponding receiver for a cellular phone transmission, so that the car rental center assigns this key to the car lock via the normal mobile radio network. The consignee is likewise informed via the mobile radio network at which place and when he/she can pick up his the car. With a corresponding means 5 part in the cellular phone, for example such as an infrared interface, the consignee can then open the car by transmission of his/her credit card number. It goes without saying that, instead of the credit card number, the personal key may also may be a personal number on the SIM card or a smart card in the cellular phone, which is sent directly as the key at the push of a button, without any further entry 10 on the cellular phone. After expiry of the rental time, the key is then automatically invalidated in the lock of the motor vehicle, so that the renter no longer has access to the car.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be 15 made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

Abstract

ABSTRACT OF THE DISCLOSURE

Method for distributing goods

A description is given of a A method for distributing goods in which the
5 good is deposited by a consignor and secured with a lock. A common electronic
key is assigned to the lock and to a personalized terminal device belonging to the
consignee. When the key is transmitted from the terminal device to the lock, this
key is compared with the key assigned to the lock and the good is released only if
the keys match.

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Zur Erklärung der Zwei-Buchstaben-Codes, und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

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(54) Title: METHOD FOR DISTRIBUTING GOODS

(54) Bezeichnung: VERFAHREN ZUR DISTRIBUTION VON GÜTERN

WO 01/13286 A2

(57) Abstract: The invention relates to a method for distributing goods. According to said method, the good is deposited by a person delivering said good, and secured with a lock. A common electronic key is then allocated to the lock and to a personalized terminal belonging to the recipient of the good. When said key is transmitted from the terminal to the lock, said key is compared with the key that is allocated to the lock. The good is only released if the keys match.

(57) Zusammenfassung: Beschrieben wird ein Verfahren zur Distribution von Gütern, bei dem das Gut von einem Übergeber deponiert und mit einem Schloß gesichert wird. Dem Schloß und einem personalisierten Endgerät des Übernehmers wird ein gemeinsamer elektronischer Schlüssel zugeordnet. Bei einer Übermittlung des Schlüssels von dem Endgerät an das Schloß, wird dieser Schlüssel mit dem dem Schloß zugeordneten Schlüssel verglichen und nur bei einer Übereinstimmung der Schlüssel das Gut freigegeben.

10/049933

JC10 Rec'd PCT/PTC 19 FEB 2002

Description

Method for distributing goods

5 The invention relates to a method for distributing goods.

An item which has been ordered for example by mail, telephone or the Internet has in the past usually been 10 delivered to the address desired by the purchaser by a delivery service, forwarding company or the like. To be able to take delivery of the item, the purchaser must either be at the place at the time of delivery or authorize a person to take delivery of the item. 15 However, on account of the organizational structure, it is unfavorably not possible in general for the delivery service to announce in advance the precise time of delivery. Therefore, situations very often arise in which the delivery service finds no-one at the place of 20 delivery to whom it can hand over the item.

In these cases, in the past the delivery service has usually left in the mailbox a note on which a new time is suggested or a pickup point (for example the Post 25 Office) is given. If a new delivery time is agreed, there is again the same problem, since here, too, the precise time can rarely be specified and it is only possible in general for this to be within a restricted time frame, for example during the customary working 30 hours. The possibility of picking up the item at a predetermined pickup point is generally not a genuine alternative, since the responsible agency at this pickup point also has in general restricted opening hours. Moreover, picking up the item is only possible 35 after presenting proof of identity, which is quite inconvenient.

It is therefore the object of the present invention to specify an alternative to the methods mentioned.

This object is achieved by a method for distributing goods in which the good is deposited by a consignor and secured with a lock and a common electronic key is assigned to the lock and to a personalized terminal device belonging to the consignee and, when the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.

5

10 The term "consignor" is to be understood here as any person responsible for handing over the item, for example the seller itself or a delivery service authorized by it. The term "consignee" is generally the person who takes delivery of an item, for example 15 the purchaser or a person nominated to pick up the item. The personalized terminal device may preferably be a mobile communications terminal device, for example a cellular phone or a PDA (Personal Digital Assistant), with a dedicated unique personal identification or else 20 with a corresponding chip card, on which the personal identification is stored. The personal identification may be regarded in the broadest sense as including the telephone number of the device. It may, however, in principle also be the chip card itself, for example a 25 smart card, which is uniquely assigned to the consignee and can be used in various devices or terminal devices.

The method according to the invention offers the possibility of leaving the item at any desired time and 30 securing it in such a way that only an authorized person, that is the purchaser itself or a person instructed by the latter, can pick up the item at any desired time. The assignment of the common electronic key to the lock and to the consignee's personalized 35 terminal device provides the highest possible security for both parties,

since the key is coupled with a unique identification of the consignee.

The method makes possible considerable time savings and 5 personal savings and consequently cost advantages on the part of the delivery companies or mail-order trade. For the orderer or the recipient, the invention has the advantage that, in particular in the case of what are known as e-commerce transactions, it is independent of 10 the opening hours of an actual business, or in the case of delivery, of the delivery times or opening hours of a pickup place.

The electronic key is preferably transmitted to the 15 consignee's terminal device with the aid of a remote data transmission method, for example via mobile radio. This method has the advantage that, on account of the relatively good area coverage of the mobile radio networks, the consignee can be transmitted its key at 20 any time, independently of the location.

The consignee can send the key on the spot to the locker directly from the mobile communications terminal device. For this purpose, both the communications 25 terminal device and the locker have corresponding transmitters and receivers. These are preferably short-range transmitters and receivers. These include, for example, infrared interfaces or else what are known as "Bluetooth" modules, i.e. short-range radio 30 transmitters or receivers which serve for the exchange of data between neighboring devices. It goes without saying that it is also possible for the key to be output on a display of the cellular phone and entered again via the keypad on the device by the person 35 carrying out the pickup.

It also goes without saying that here, too, transmission via the wide-ranging mobile radio network

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- 3a -

is possible. The use of a short-range communication means for the transmission of the key to the lock has the advantage, however, that the consignee cannot inadvertently transmit the key and

trigger a release of the good although he is not ready at the place to take delivery.

To increase the security for the consignor, it is also 5 possible for the transmission of the key to the consignee's terminal device only to take place after a prescribed transaction has been carried out, for example a payment has been made. This securing measure may also take the form that the consignee has already 10 transmitted the key before the payment and the lock only releases the good once an additional release signal of the consignor has been received. That is to say, on the one hand the correct transmission of the key and on the other hand the release signal are 15 necessary for the opening of the lock.

It is also possible for the key to comprise two parts, and for one part-key to be passed on immediately to the 20 person carrying out the pickup and another part-key only to be passed on to the person carrying out the pickup when a payment has safely been made. The locker can then only be opened with the key composed of these two parts.

25 In the case of these methods, the previously existing problem of payment for the item is consequently also solved in a simple way. Delivery on account or on the basis of a credit card or debit note is often too 30 insecure for the seller. The cash-on-delivery method, which by contrast is relatively secure and in which the amount is paid to the delivery service on delivery of the item, entails increased costs.

35 Information on the time from which and at which place the item has been deposited ready for pickup is preferably also transmitted at the same time as the key to the terminal device.

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- 4a -

There are various possibilities for the assignment of the key to the lock.

In the case of one exemplary embodiment, the key is newly assigned to the locker for each deposit. This assignment may take place before, after or during the 5 depositing act. In this case, either the consignor can freely select the key or a random key is generated automatically, for example with the aid of a random generator, and this key is transmitted to the consignor, if appropriate after a corresponding inquiry. The consignor can then pass on the key to the 10 consignee when the order is placed.

With the freely selectable assignment of the key to the lock, it is possible in particular for a unique personal identification, for example a credit card 15 number of the consignee, or a unique identification of the terminal device belonging to the consignee, for example the mobile radio number, to be chosen as the key and assigned to the lock. This method is appropriate in particular whenever the item is in any 20 case being ordered by cellular phone or is being paid for with a credit card. In this case, the key does not have to be sent by the consignor to the device in a separate operation.

25 In the case of another exemplary embodiment, the same key is always used. In this case, however, the transmission to the consignee's terminal device should only take place in such an encoded form that this key cannot be read by the consignee. The key is then 30 stored in the terminal device and used for releasing the lock when delivery is taken of the good, without the consignee finding out what the key is.

For this purpose, it is also advantageous in particular 35 if the key automatically becomes invalid when an invalidation condition occurs. Possible invalidation conditions could be, inter alia, the expiry of a prescribed time of use for the good or a prescribed

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number of accesses to the lock. For instance, in the case of the exemplary embodiment mentioned above, in which always the same key is used - and is not recognizable for the respective consignee -

the key automatically becomes invalid after being transmitted once to the lock, so that no further access to the same lock is possible by the consignee once delivery has been taken of the good.

5

Further invalidation conditions may also be, for example, repeated incorrect transmission of the key to the lock, i.e. unsuccessful opening attempts, or else an inhibit command sent by the consignor to the lock.

10

The assignment of the key to the lock by the consignor, the inquiry of a key, the entering of inhibit commands or the like are preferably likewise carried out with the aid of a remote data transmission method, for 15 example mobile radio.

It goes without saying that a transmission of the key both to the consignee's terminal device and to the lock by the consignor can be carried out over other data 20 lines, for example the Internet or e-mail.

The method according to the invention may be carried out in particular with electronic locks which control the locking device of a locker. In this case, for 25 handing over, the good is deposited in a corresponding, publicly accessible locker and secured. The consignee can at any desired time open the lock with the key transmitted to him and remove the good. Another possibility, in particular in the case of relatively 30 large goods such as motor vehicles, which in any case have a locking device of their own, is to control this locking device itself by a corresponding electronic lock.

35 In the invention, therefore, a locking device for securing a good is also specified for carrying out the method according to the invention. This locking device

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correspondingly has a lock with an assignment input for the assignment of an electronic

key and with an opening input for the entering of an electronic key for opening. In addition, it has a comparator, which checks the match of the two keys, and a release means, which opens the locking device when 5 there is a match of the key.

Depending on the desired method, this locking device may then additionally also have an invalidation means, which makes the key invalid when the prescribed 10 invalidation condition occurs.

Further components are, for example, a random generator for the generation of a key, which is assigned to the lock via a corresponding input and can be transmitted 15 to the consignor or inquired by the latter via a corresponding output. Furthermore, such a locking device has a receiver and also transmitter for transmitting the electronic key via a data transmission link. If the short-range communication between the 20 consignee's terminal device and the lock is used, a correspondingly short-range receiver, for example an infrared interface, is provided for the opening input.

If such locks are used within a locker system, the 25 locks of a group of lockers may also be assigned a common electronic group key, all these lockers with the common group key being assigned to a specific delivery company or a specific mail-order firm. If a group key is used, it goes without saying that it must be ensured 30 when the key is transmitted to the locker system that the respective key opens only the desired locker. This may take place, for example, by means of an additional assignment code or the like. In particular when using a key which

cannot be read by the consignee and is deleted again immediately after expiry of an access authorization, this group key has the advantage that it is not necessary in the organization of the sender or delivery 5 service to work with continually changing keys.

A terminal device for carrying out the method must, according to the invention, have a means for receiving, storing and passing on a corresponding electronic key 10 to an electronic lock, the means for passing on the key to the lock preferably being a short-range transmitter.

In the case of a preferred exemplary embodiment, the device or the mentioned components of the terminal 15 device are designed in such a way that they receive, store and transmit the key to the lock in a form which cannot be read by the user.

Similarly, this terminal device may have an 20 invalidation means, for example with a clock or a counter, which automatically deletes the key when a specific invalidation condition occurs, for example after expiry of a specific time or after a specific number of transmissions to the lock, possibly after 25 once-only use. This invalidation condition can be transmitted by the consignor together with the key to the device. However, in principle, the invalidation condition may also be preset in a fixed way in the device.

30 The device is preferably a mobile communications terminal device, for example a cellular phone or a PDA with a chip card, or the consignee's chip card itself. This may be a normal SIM card, on which the key is 35 buffer-stored by the mobile communications terminal device. This may, however, also be a smart card, which itself is capable

of controlling the corresponding desired functions largely independently of the communications terminal device respectively used. The use of a smart card also has the advantage that better coding of the key can be
5 achieved in a simple way, so that a secure transmission is possible without a third party being able to gain possession of the key by listening in to the transmission.

10 It goes without saying that the receiver of the device or the transmitter of the communications terminal device may be what are known as transceivers, which permit both reception and transmission, so that, when the key for opening is transferred, a two-way
15 communication between the locking device and the communications terminal device can take place. Therefore, further inquiries and checks are possible as additional securing measures before the release of the good.

20 For instance, it is also possible in particular for the payment conditions under which the locking device can be opened to be stored in a corresponding means on said device and for the key for opening to be accepted only
25 after the execution of a payment instruction via the communications terminal device, for example by a kind of online banking.

If the respective good is an item which can itself be
30 transmitted via a data link, for example music or software, the electronic lock can also be used to store the desired data and secure it by means of a corresponding electronic lock, on for example certain servers accessible to the public via the Internet, the
35 taking over of the good, that is to say in this case a downloading operation, on the respective server only being possible by a key being transmitted to the server or the lock there from a corresponding terminal device

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belonging to the consignee. This procedure has advantages in particular when supplying relatively large amounts of data, as is the case with music or video films.

The transmission of such large amounts of data from a few central servers of a data producer represents quite a high loading of the network. With the method according to the invention, this capacity problem can 5 be solved by the item being deposited at decentralized mirrored servers. The respective operators of these servers, i.e. the data distributors, are, however, in general not necessarily identical with the data producers, but are rather a kind of delivery service 10 for the actual supplier. Since, in the present case, the good is not taken over in the actual sense, but rather is copied, there is at the location of the server a corresponding device which records the transfer of the correct key to the lock. This may be 15 used by the operator of the server as evidence to the original producer that the service has been performed.

The invention is explained once again below on the basis of two exemplary embodiments.

20 In the case of a first exemplary embodiment, any desired product is ordered by an orderer via a cellular phone. The seller deposits the item in a locker and assigns a key to this locker via a corresponding data 25 transmission link, for example a radio link or a data line. This assignment of the key may also take place in advance, whereby the seller has reserved the corresponding locker and can deposit the item in this locker at any time. These lockers are in an area which 30 is accessible to the public at any time. The orderer then receives a message on his cellular phone indicating at which locker and from what time he can pick up his item. At the same time, the electronic key is loaded onto the orderer's cellular phone, for 35 example by downloading, by Java-appled or WAP. The orderer then goes to the locker at the time desired by him and uses his cellular phone to establish short-range communication with the locker or the

corresponding means of the locker. The key is thereby transmitted to the locker. After all the necessary data have been exchanged and possibly further security steps, such as an inquiry that the payment has taken 5 place, have been successfully conducted, the opening of the locker takes place, and consequently the release of the item for the recipient.

The second exemplary embodiment involves an electronic 10 lock on a rental car. Firstly, a key is allocated to a special lock of a rental car by the consignor, i.e. the car rental center. This key is, for example, the credit card number which the consignee, i.e. the renter, has given when ordering the rental car and by 15 means of which the payment took place. The lock of the rental car has for this purpose a corresponding receiver for a cellular phone transmission, so that the car rental center assigns this key to the car lock via the normal mobile radio network. The consignee is 20 likewise informed via the mobile radio network at which place and when he can pick up his car. With a corresponding means in the cellular phone, for example an infrared interface, the consignee can then open the car by transmission of his credit card number. It goes 25 without saying that, instead of the credit card number, the personal key may also be a personal number on the SIM card or a smart card in the cellular phone, which is sent directly as the key at the push of a button, without any further entry on the cellular phone. After 30 expiry of the rental time, the key is then automatically invalidated in the lock of the motor vehicle, so that the renter no longer has access to the car.

Patent claims

1. A method for distributing goods in which the good is deposited by a consignor and secured with a lock
5 and a common electronic key is assigned to the lock and to a personalized terminal device belonging to the consignee and, when the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.
10
2. The method as claimed in claim 1, characterized in that the electronic key is transmitted to the consignee's terminal device with the aid of a remote data transmission method.
15
3. The method as claimed in claim 2, characterized in that the key is transmitted to the terminal device in a form which cannot be read by the consignee.
20
4. The method as claimed in one of claims 1 to 3, characterized in that the transmission of the key from the consignee's terminal device to the lock takes place by means of a short-range data transmission method.
25
5. The method as claimed in one of the preceding claims, characterized in that the transmission of the key to the consignee's terminal device and/or the release of the good by the lock only takes place after a prescribed transaction has been carried out.
30
6. The method as claimed in one of the preceding claims, characterized in that information on the time and/or place of the deposit is transmitted at the same time as the transmission of the key to the consignee's terminal device.
35

7. The method as claimed in one of the preceding claims, characterized in that the key is automatically invalidated when an invalidation condition occurs.

5

8. The method as claimed in claim 7, characterized in that the key is automatically invalidated after the expiry of a prescribed time and/or after a prescribed number of openings of the lock.

10

9. The method as claimed in one of the preceding claims, characterized in that a new key is assigned to the lock for each deposit.

15

10. The method as claimed in one of the preceding claims, characterized in that the key is determined and assigned to the lock with the aid of a random generator.

20

11. The method as claimed in one of the preceding claims, characterized in that the key is assigned to the lock in a freely selectable manner by means of an entry into a memory.

25

12. The method as claimed in one of the preceding claims, characterized in that the key is assigned to the lock with the aid of a remote data transmission method.

30

13. The method as claimed in one of the preceding claims, characterized in that the transmission of the key to the terminal device and/or the assignment of the key to the lock takes place via mobile radio.

35

14. The method as claimed in one of claims 11 to 13, characterized in that a unique personal identification of the consignee and/or a unique

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identification of the terminal device is chosen as the key.

15. The method as claimed in one of the preceding claims, characterized in that the release of the good takes place only after a release command of the consignor has been received.
5
16. The method as claimed in one of the preceding claims, characterized in that the lock controls a locking device of a locker.
10 17. The method as claimed in one of the preceding claims, characterized in that the lock controls a locking device of the good itself.
18. A locking device for securing a good for carrying
15 out the method as claimed in one of the preceding claims, with a lock with an assignment input for the assignment of an electronic key, with an opening input for the entering of an electronic key for opening, with a comparator, which checks the
20 match of the two keys, and with a release means, which opens the locking device when there is a match of the keys.
19. The locking device as claimed in claim 18,
25 characterized by a means for automatically invalidating the key when a prescribed invalidation condition occurs.
20. The locking device as claimed in claim 18 or 19,
30 characterized by a random generator, which generates a key and assigns it to the lock via the assignment input, and an output via which the generated key is transmitted to the consignor.
35 21. The locking device as claimed in one of claims 18 to 20, characterized by a receiver and/or a transmitter for transmitting the electronic key via a data transmission link.

22. The locking device as claimed in one of claims 18 to 21, characterized by a short-range receiver for transmitting the electronic key to the opening input.

5

23. A locker with a locking device as claimed in one of claims 18 to 22.

10 24. A locker system with a plurality of lockers as claimed in claim 23.

25. The locker system as claimed in claim 24, characterized in that the locks of a group of lockers are assigned a common electronic group key.

15

26. A terminal device with a unique personal identification and a means for receiving, storing and transmitting an electronic key to a lock by a method as claimed in one of claims 1 to 17.

20

27. The terminal device as claimed in claim 26, characterized by an invalidation means, which automatically invalidates the key when an invalidation condition occurs.

25

28. The terminal device as claimed in claim 27, characterized by an invalidation means, which automatically invalidates the key after a specific point in time and/or after a specific number of 30 transmissions to the lock.

35

29. The terminal device as claimed in one of claims 26 to 28, characterized in that the device receives, stores and transmits the key to the lock in a form which cannot be read by the user.

30. The terminal device as claimed in one of the preceding claims, characterized in that the terminal device comprises a chip card.

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Abstract

Method for distributing goods

A description is given of a method for distributing goods in which the good is deposited by a consignor and secured with a lock. A common electronic key is assigned to the lock and to a personalized terminal device belonging to the consignee. When the key is transmitted from the terminal device to the lock, this key is compared with the key assigned to the lock and the good is released only if the keys match.

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD AND APPARATUS FOR DISTRIBUTING GOODS

the specification of which: (check one)

is attached hereto.

was filed on **15 May 2000**, as United States Application No. or PCT International Application No. **PCT/DE00/01536** and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent Office all information which is known to me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code Section 119 or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT international application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Number	Country	Day/Month/Year Filed	Priority Not Claimed
199 38 894.6	Germany	17/08/99	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

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